Columbus McKinnon Entertainment Division

PROSTAR

Operating, Maintenance & Parts Manual

Follow all instructions and warnings for inspecting, maintaining and operating this hoist.

The use of any hoist presents some risk of personal injury or property damage. That risk is greatly increased if proper instructions and warnings are not followed. Before using this hoist, each operator should become thoroughly familiar with all warnings, instructions, and recommendations in this manual. Retain this manual for future reference and use.

Forward this manual to the hoist operator. Failure to operate the equipment as directed in the manual may cause injury.

Before using the hoist, fill in the information below:

Capacity _____

Serial No. _____

Voltage _____

Purchase Date _____

Capacities

250 lb (113 Kg) **300 lb (136 Kg)**

500 lb (226 Kg) **600 lb (272 Kg)**

1,000 lb (453 Kg)

20875
Revision P620-G

LIFETIME WARRANTY

Every Columbus McKinnon Corporation hoist is thoroughly inspected and performance tested prior to shipment from the factory. If any properly installed, maintained and operated hoist as outlined in the applicable accompanying Columbus McKinnon hoist manual develops a performance problem due to defective materials or workmanship as verified by Columbus McKinnon Corporation, repair or replacement of the hoist will be made to the original purchaser without charge and the hoist will be returned, transportation prepaid.

This warranty does not apply where deterioration is caused by normal wear, abuse, improper or inadequate power supply, improper or inadequate maintenance, eccentric or side loading, overloading, chemical or abrasive actions, excessive heat, unauthorized modifications or repairs, or use of non-Columbus McKinnon Corporation repair parts. **EXCEPT AS STATED HEREIN, COLUMBUS MCKINNON CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABLILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

⚠WARNING

Alterations or modifications of equipment and use of non-factory repair parts can lead to dangerous operation and injury.

TO AVOID INJURY:

- **Do not alter or modify equipment**
- **Do not use equipment to lift, support or otherwise transport people**
- **Do not suspend unattended loads over people**

COFFING® HOISTS

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12/08

SAFETY PRECAUTIONS

Each Prostar Electric Hoist is built in accordance with the specifications contained herein and at the time of manufacture complied with our interpretation of applicable sections of the National Electrical Code (ANSI/NFPA 70). Installers are required to provide current overload protection and grounding in keeping with the code. Check each installation for compliance with the applicable sections of the code as well as the National, State and Local Codes that may apply to the installation. In addition, safety code requirements associated with the operation of a hoist in the inverted (theatrical) position (chain port up), as with any mechanical equipment, vary depending upon locality. Therefore, before installing the hoist, the user should consult his insurance company and/or local authority to see if a deviation is required to permit the use of the hoist in this particular application.

The safety laws for elevators, lifting of people and for dumbwaiters specify construction details that are not incorporated into the hoists. For such applications, refer to the requirements of applicable state and local codes, and the American National Safety Code for elevators, dumbwaiters, escalators and moving walks (ASME A17.1). We cannot be responsible for applications other than those for which the equipment is intended.

THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH IF NOT FOLLOWED COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL AND ANY PROVIDED WITH THE EQUIPMENT BEFORE ATTEMPTING TO OPERATE YOUR PROSTAR HOIST.

WARNING

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in death or serious injury. To avoid such a potentially hazardous situation, the operator shall:

1. **NOT** operate a damaged, malfunctioning or unusually performing hoist.
2. **NOT** operate the hoist until you have thoroughly read and understood this Operating, Maintenance and Parts Manual.
3. **NOT** operate a hoist which has been modified.
4. **NOT** lift more than rated load for the hoist.
5. **NOT** use hoist with twisted, kinked, damaged, or worn load chain.
6. **NOT** use the hoist to lift, support, or transport people.
7. **NOT** lift loads over people.
8. **NOT** operate a hoist unless all persons are and remain clear of the supported load.
9. **NOT** operate unless load is centered under hoist.
10. **NOT** attempt to lengthen the load chain or repair damaged load chain.
11. Protect the hoist's load chain from weld splatter or other damaging contaminants.
12. **NOT** operate hoist when it is restricted from forming a straight line from hook to hook in the direction of loading.
13. **NOT** use load chain as a sling, or wrap load chain around load.
14. **NOT** apply load to the tip of the hook or to the hook latch.
15. **NOT** apply the load unless load chain is properly seated in the chain wheel(s) or sprocket(s).
16. **NOT** apply load if bearing prevents equal loading on all load supporting chains.
17. **NOT** operate beyond the limits of the load chain travel.
18. **NOT** leave load supported by the hoist unattended unless specific precautions have been taken.
19. **NOT** allow the load chain or hook to be used as an electrical or welding ground.
20. **NOT** allow the load chain or hook to be touched by a live welding electrode.
21. **NOT** remove or obscure the warnings on the hoist.
22. **NOT** operate a hoist on which the safety placards or decals are missing or illegible.
23. **NOT** operate a hoist unless it has been securely attached to a suitable support.
24. **NOT** operate a hoist unless load slings or other approved single attachments are properly sized and seated in the hook saddle.
25. Take up slack carefully - make sure load is balanced and load holding action is secure before continuing.
26. Shut down a hoist that malfunctions or performs unusually and report such malfunction.
27. Make sure hoist limit devices function properly.
28. Warn personnel of an approaching load.

CAUTION

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in death or serious injury. To avoid such a potentially hazardous situation, the operator shall:

1. Maintain a firm footing or be otherwise secured when operating the hoist.
2. Check brake function by tensioning the hoist prior to each lift operation.
3. Use hook latches. Latches are to retain slings, chains, etc. under slack conditions only.
4. Make sure the hook latches are closed and not supporting any parts of the load.
5. Make sure the load is free to move and will clear all obstructions.
6. Avoid swinging the load or hook.
7. Make sure hook travel is in the same direction as shown on the controls.
8. Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
9. Use factory parts when repairing the unit.
10. Lubricate load chain per instructions in this manual.
11. **NOT** use the hoist load limiting or warning device to measure load.
12. **NOT** use limit devices as routine operating stops unless allowed by manufacturer. They are emergency devices only.
13. **NOT** allow your attention to be diverted from operating the hoist.
14. **NOT** allow the hoist to be subjected to sharp contact with other hoists, structures, or objects through misuse.
15. **NOT** adjust or repair the hoist unless qualified to perform such adjustments or repairs.

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Figure 1A

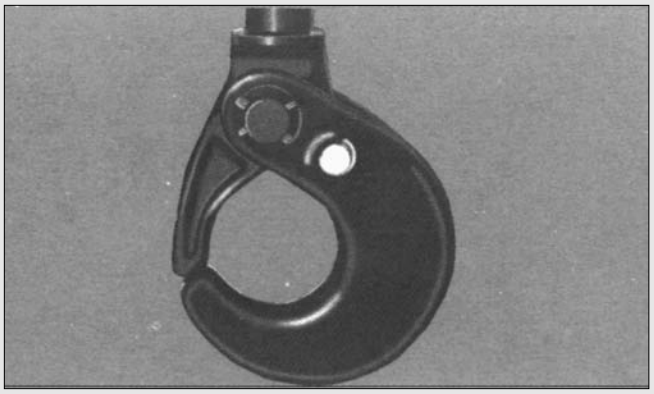


Figure 1B

SPECIFICATIONS

The Prostar Electric Chain Hoist is a highly versatile materials handling device that can be used to lift loads that are within its rated load capacity. It is available in five load ratings: 250, 300, 500, 600 and 1,000 pounds (113,136, 226, 272 and 453 kg).

Standard features of the Prostar Electric Chain Hoist include:

- Alloy steel, oblique lay liftwheel that provides constant chain speed and reduces chain wear.
- Hoistaloy® load chain for long and dependable service.
- Grease lubricated, hardened spur gears provide smooth and quiet operation.
- Thermally protected, hoist duty motor.
- Forged steel upper and lower hooks with latch.
- Protector™ that prevents lifting dangerous overloads.
- D.C. disc type motor brake plus regenerative braking.
- Standard Less Chain Unit. Longer lifts can be supplied on a per order basis.
- 3 foot (.9 M) power cord with provisions for grounding is standard on 115-50/60, 220-1-50 and three phase units.
- 3 foot (.9M) is standard for all control cords. Longer cords can be provided on a per order basis.
- Lightweight die cast aluminum frames and covers.
- Ball or needle bearings at all rotating points.
- Compact, yet rugged, design provides minimum headroom and long, trouble-free service.
- 6 fpm (1.8 m/min) lift speed available on 1000 lbs (453 kg) units.
- 8 fpm (2.4 m/min) lift speed available on 500-600-1000 lbs (226, 272 and 453 kg) units.
- 12 fpm (3.6 m/min) lift speeds available on 500-600-1000 lbs (226, 272 and 453 kg) units.
- 16 fpm (4.9 m/min) lift speeds available on 250-300-500 lbs (113, 136 and 226 kg) units.
- 20 fpm (6.1 m/min) lift speeds available on 500-600 lbs (226 and 272 kg) units.
- 24 fpm (7.3 m/min) lift speeds available on 250-300-500 lbs (113, 136 and 226 kg) units.
- 40 fpm (12.2 m/min) lift speeds available on 250-300 lbs (113 and 136 kg) units.
- 220-1-50, 380 to 460-3-50/60, 220 to 240-3-50/60 and 575-3-60 units available. Lift speeds are based on 60 hertz power supply. For 50 hertz power supply lift speeds will be 5/6 of those indicated.
- UL and cUL listed.
- Lifetime Warranty.

REPAIR/REPLACEMENT POLICY

All Prostar Electric Chain Hoists are inspected and performance tested prior to shipment. If any properly maintained hoist develops a performance problem, due to a material or workmanship defect, as verified by the factory, repair or replacement of the unit will be made to the original purchaser without charge. This repair/replacement policy applies only to Prostar Hoists installed, maintained and operated as outlined in this manual, and specifically excludes hoists subject to normal wear, abuse, improper installation, improper or inadequate maintenance, hostile environmental effects and unauthorized repairs/modifications.

We reserve the right to change materials or design if, in our opinion, such changes will improve our product. Abuse, repair by an unauthorized person, or use of non-factory replacement parts voids the guarantee and could lead to dangerous operation. All Prostar Electric Chain Hoists are backed with a lifetime warranty. Refer to the back cover for details and limitations.

⚠ WARNING

Alterations or modification of hoist and use of non-factory repair parts can lead to dangerous operation and injury.

TO AVOID INJURY:

- Do not alter or modify equipment.
- Do use only factory replacement parts.

ACCESSORIES

Chain Container

This accessory item (Figure 1A) is used to hold the slack chain and it is supplied with mounting hardware and instructions. Chain containers are recommended for those applications where slack chain will interfere with the load or drag on the floor as may more often be the case with the Double-reeved, 500, 600 and 1,000 lbs, (226, 272 and 453 kg) units. Chain containers are shipped separately and can be furnished for units already in service.

Latchlok® Hooks

Latchlok Hooks (Figure 1B) are available to replace the standard lower latch type hooks. The unique design of the Latchlok Hook assures that it will stay locked until the operator releases it by depressing the release button. It will not open accidentally–even if the load chain goes slack. Once opened, it can be shut with one hand or the weight of the load when it is lifted. Latchlok Hooks can be supplied with the hoist or they can be provided in kit form for hoists already in service.

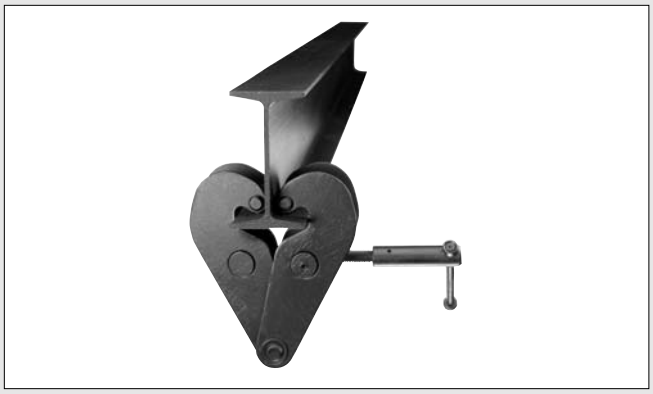


Figure 2A

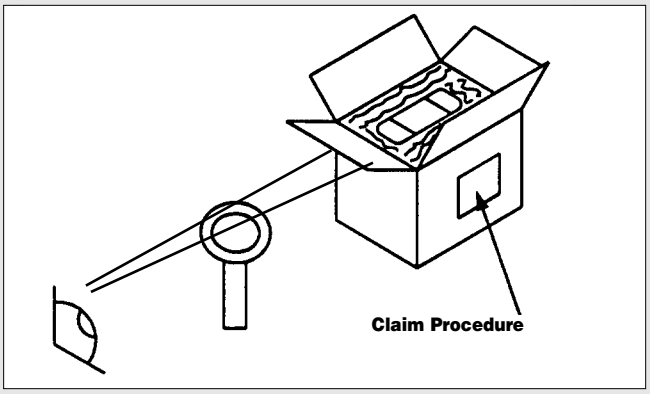


Figure 2B

BC Series Beam Clamps

The beam clamps are ideal as anchors for rigging applications (Figure 2A). The BC series clamps can be adjusted to fit a wide range of beam sizes. The lightweight and compact design makes the beam clamps ideal for repeated set-ups and tear-downs.

Entertainment Rigging Products

Refer to sales Bulletin No. EPD-10B for additional rigging products that can be used in the entertainment industry.

INSTALLATION

UNPACKING

After opening the carton (Figure 2B) , carefully inspect the hoist frame, cords, hooks, chain and control station for damage that may have occurred during shipment. If there is damage, refer to the packing slip envelope.

Make sure that the power supply (Figure 3A) to which the hoist is to be connected is the same as that shown on the identification plate located on bottom of hoist.

⚠ WARNING

Operating a unit with obvious external damage may cause load to drop and that may result in personal injury and/or property damage.

TO AVOID INJURY:

Carefully check unit for external damage prior to installation.

MOUNTING THE HOIST

Attach the hoist to the truss/structure to be lifted using the mounting hook (Figure 3B) . Be sure that the attachment point is held in the lowermost part of the hook arc and the latch is tightly against the hook tip. Also, the attachment point must have sufficient strength to withstand several times the load imposed. If in doubt, consult a registered engineer and local building codes.

⚠ WARNING

An inadequate attachment point may allow the hoist and load to fall and cause injury and/or property damage.

TO AVOID INJURY:

Make sure the attachment point has sufficient strength to hold several times the hoist and its rated load.

POWER SUPPLY SYSTEM

(Refer to Figure 4A or 4B on page 5). To insure proper operation, to avoid damage to hoist and electrical system and to reduce the risk of electric shock or fire, the branch circuit supplying power to the hoist must:

1. Have ample capacity to prevent excessive voltage drop during starting and operation (refer to “Checking for Adequate Voltage at Hoist” on page 4). When determining the size of branch circuit components and conductors, special consideration should be given to the starting current-amps (approximately three times that shown on the hoist identification plate) and the length of the conductors. As a minimum, the system should be rated for 15 amps and it should have #16 AWG, or larger, wiring.
2. Be in accordance with the National Electrical Code (ANSI/NFPA-70) and applicable National, State and Local Codes.
3. Effectively ground the hoist in accordance with National Electrical Code and other applicable codes. Proper grounding provides a path of least resistance for electric current to reduce the risk of electric shock. The power cord of the hoist includes a green-yellow wire for grounding the hoist to the external power supply system. Be sure that the receptacle opening that receives the longest prong is properly grounded. If grounding is to be through the trolley trackwheels, each section of the runway must be grounded to the building ground system using metal to metal connections.
4. Include slow blow type fuses or inverse trip time circuit breakers to permit the hoist to start and accelerate load.

⚠ WARNING

Failure to properly ground the hoist presents the danger of electric shock.

TO AVOID INJURY:

Permanently ground the hoist as instructed in this manual.

5. Include a disconnecting means capable of being locked in the “open” position.

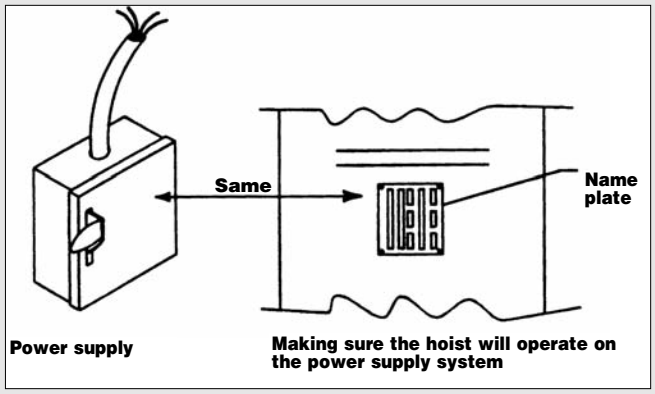


Figure 3A

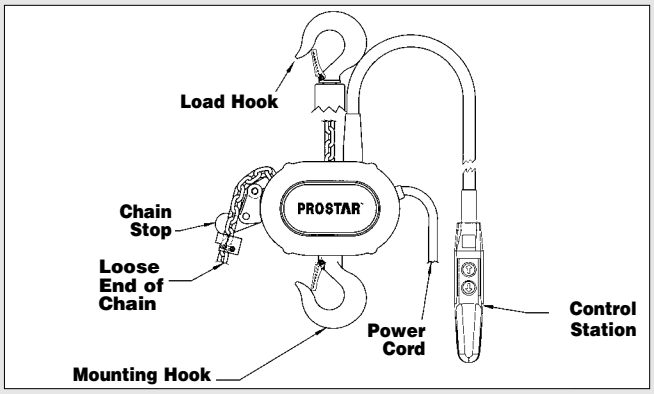


Figure 3B

NOTE: IN THIS MANUAL, NOMINAL VOLTAGES ARE USED WHEN REFERRING TO POWER SUPPLY SYSTEMS. HOWEVER, WITH NO MODIFICATION, THE PROSTAR HOIST WILL OPERATE ON A RANGE OF VOLTAGES AS INDICATED BELOW:

NOMINAL VOLTAGE	VOLTAGE RANGE	HERTZ
230	208-240	60
460	440-480	60
220	200-240	50
380	365-395	50
415	400-430	50
575	550-600	60

Three Phase Hoists

Since the motor in a three phase hoist can rotate in either direction, depending on the manner in which it is connected to the power supply, the direction of hook movement must be checked during the original installation and each time hoist is moved to a new location as follows:

1. Move the manual disconnect switch handle to the “OFF” position.
2. Connect the BROWN, GREY AND BLACK wires of hoist power cord to load side of disconnect switch. Connect the GREEN-YELLOW wire of hoist power cord to power supply ground.
3. Move the manual disconnect switch handle to the “ON” position.
4. Depress the ⇧ (up) control. If the hook moves in the up direction, the hoist is ready for operation. If the hook lowers, move the disconnect switch handle to the “OFF” position and interchange the BLACK and BROWN leads at the disconnect switch. Move the disconnect switch handle to the “ON” position and the hoist is now ready for operation.

Checking for Adequate Voltage at Hoist

The hoist must be supplied with adequate electrical power for proper operation and to reduce problems that may result from insufficient power (low voltage). These include:

- Noisy hoist operation due to brake and/or contactor chatter.
- Heating of the hoist motor and other internal components as well as heating of wires and connectors in the circuit feeding the hoist.
- Failure of the hoist to lift the load due to motor stalling.
- Blowing fuses or tripping circuit breakers.
- Dimming of lights or slowing of motors connected to the same circuit.

For proper operation and to avoid these low voltage problems, voltage (measured at end of the power cord while lifting rated load) should be as the following chart indicates.

NOMINAL POWER SUPPLY	MINIMUM OPERATING VOLTAGE	* MIN. VOLTAGE AT INSTANT OF START
115-1-50/60	108	103
220-1-50	198	182
208-3-60	187	172
220-3-50	198	182
230-3-60	207	190
380-3-50	365	336
415-3-50	399	367
460-3-60	414	380
575-3-60	518	506

****The drop in voltage upon energizing the hoist should not be below the value listed.***

Low voltage can also be caused by using an undersize extension cord to supply power to the hoist. The following charts should be used to determine the size wires in the extension cord in order to minimize the voltage drop between the power source and the hoist.

115-1-50/60 units with contactor, 220-1-50 units and three phase units (hoists with black control station)

MAXIMUM LENGTH OF EXTENSION CORD		
Wire Size	Single Phase Hoist	Three Phase Hoist
#16 A.W.G.	135 feet(40 M)	245 feet(73 M)
#14 A.W.G.	220 feet(66 M)	395 feet(120 M)
#12 A.W.G.	354 feet(107 M)	630 feet(192 M)

After the hoist is suspended from its support and you have made sure the power supply complies with the above, the hoist is ready for operation.

On the Double-reeved, 500, 600 and 1,000 lbs, (226, 272 and 453 kg) units, cut and discard the ties used to hold the two strands of chain together. With no load on the lower hook, depress the UP button in the control station and raise the lower hook until it is about 2 feet below the bottom of the hoist. Check both strands of chains for twists. Twists occur if the lower hook block has been capsized between the strands of chain during packing, shipment and/or handling. Reverse the capsize to remove twists.

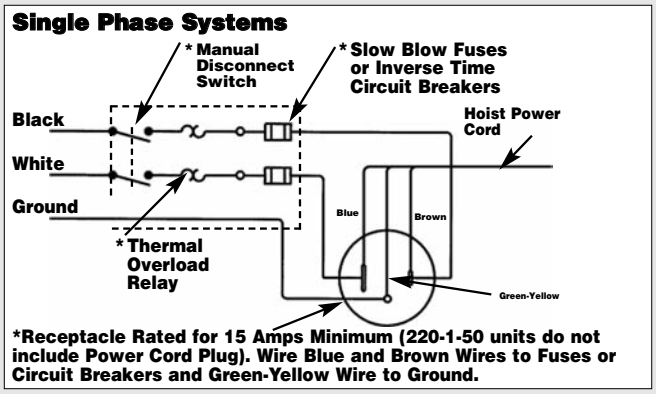

Single Phase Systems
* Manual Disconnect Switch
* Slow Blow Fuses or Inverse Time Circuit Breakers
Black
White
Ground
Hoist Power Cord
* Thermal Overload Relay
Blue
Brown
Green-Yellow
*Receptacle Rated for 15 Amps Minimum (220-1-50 units do not include Power Cord Plug). Wire Blue and Brown Wires to Fuses or Circuit Breakers and Green-Yellow Wire to Ground.

Figure 4A

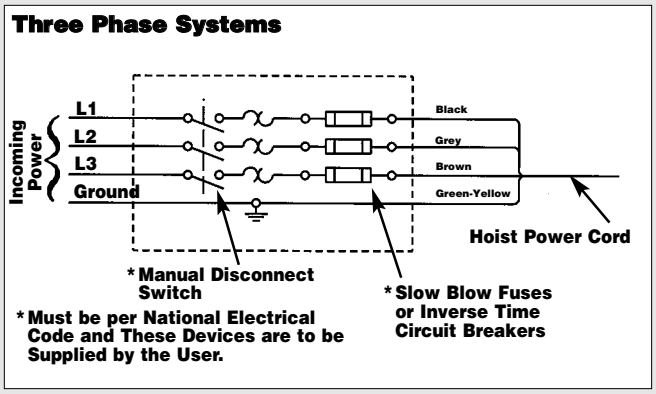


Figure 4B

CHAIN CONTAINER

If the chain container is to be used, attach it to the hoist per the instructions provided.

OPERATING INSTRUCTIONS

The hoist is equipped with a Protector™ that is designed to allow the first gear to slip on an excessive overload. An overload is indicated when the hoist speed slows down, it raises the load in a jerky manner or it will not lift the load at all. Also, some clutching noise may be heard if the hoist is loaded beyond rated capacity. Should this occur, immediately release the UP button to stop the operation of the hoist. At this point, the load should be reduced to the rated capacity or the hoist should be replaced with one of the proper capacity. When the excessive load is removed, normal hoist operation is automatically restored.

CAUTION: The Protector™ is susceptible to overheating and wear when slipped for extended periods. Under no circumstance should the Protector be allowed to slip for more than a few seconds.

Due to the above, the hoist is not recommended for use in any application where there is a possibility of adding to an already suspended load to the point of overload. This includes dumbwaiter installations, containers that are loaded in mid-air, etc. Also, if the hoist is used at unusual extremes of ambient temperatures, above 150° F (65°C). or below 15°F (-9°C)., changes in lubricant properties may permit the hoist to raise larger loads than under normal operating conditions and present possibility of damage or injury.

On units without contactor (hoists with orange control station) it is necessary to stop the hoist before changing direction. Therefore, when lowering a load, the push button in the control station must be released momentarily before the UP button is depressed to raise the load. If this is not done, the hoist will continue to operate in the down direction while the UP push button is depressed, and it will continue to lower the load until the control push button is released. As a result, the direction must not be reversed quickly (plug reversed).

There are no electrical switches to stop the operation of the hoist at the upper and lower limits of lift. As a result, it is necessary to release the push button in the control station to stop the hoist before the hook block or chain stop contacts the bottom of the hoist frame. If the hook block or chain stop contacts the hoist frame, the Protector will function to stop the hoisting or lowering operation and protect the hoist components from damage. However, continued, prolonged or repeated slipping of the Protector will damage the Protector and cause overheating of the internal hoist components.

⚠ WARNING

Allowing the hook block to run into the hoist when raising a load or allowing the chain stop to run into the hoist when lowering a load may break the chain and allow the load to drop.

TO AVOID INJURY:

Do not allow the hook block or the chain stop to contact the hoist frame.

Hoist operation is controlled by depressing the control station push buttons (Refer to Figure 5A, pg 6). Depressing the UP push button will move the load hook toward the hoist head; depressing the DOWN push button will move the load hook away from the hoist head.

The UP and DOWN buttons are momentary type and the hoist will operate in the selected direction as long as the button is held in the depressed position. Release the push button and the hoist will stop.

It is preferred that the load always be tied off with auxiliary chains or cables before access to the area beneath the load is permitted. As an alternative, the system may be designed such that malfunction or failure of one hoist's load bearing components does not cause load loss and/or overloading of any other hoists in the system. Note that in such a system, hoist performance and function must be monitored visually or with the use of load cells. Check the supporting structure to which the load hook is to be attached. Make sure the attachment point as well as the structure have sufficient strength to withstand several times the load imposed. If in doubt, consult a registered engineer and local building codes.

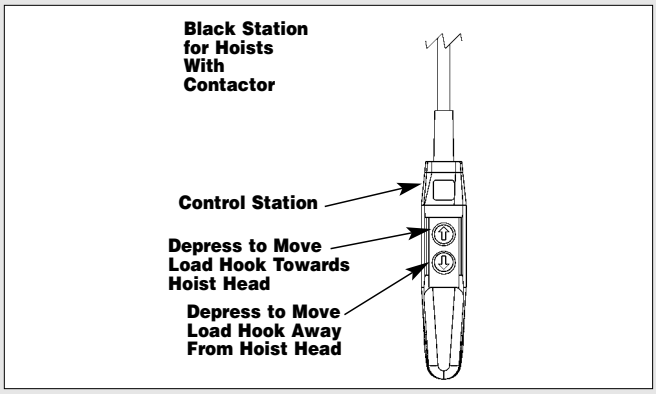


Figure 5A

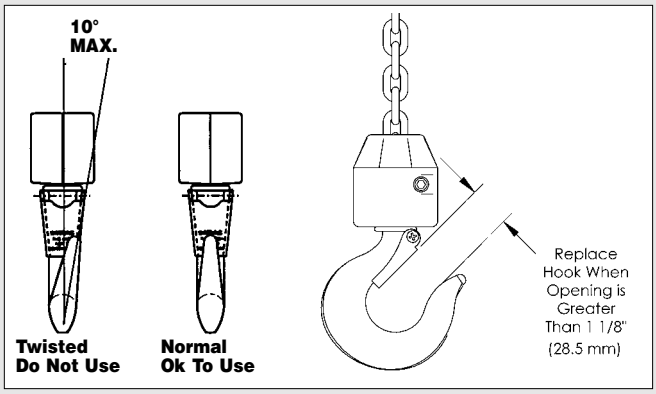


Figure 5B

WARNING

Attaching the load hook to an inadequate support may allow the hoist and load to fall and cause injury and/or property damage.

TO AVOID INJURY:

Make sure the structure and the load hook attachment point have sufficient strength to hold several times the hoist and rated load.

1. When preparing to lift a load, be sure that the attachments to the load hook are firmly seated in hook saddle. Avoid off center loading of any kind, especially loading on the point of the hook.
2. When lifting, raise the load only enough to clear the floor or support and check to be sure that the attachments to the hook and load are firmly seated. Continue lift only after you are assured the load is free of all obstructions.
3. Do not load the hoist beyond the rated capacity shown on the brake end cover. Overloading can cause immediate failure of some load-carrying part or create a defect causing subsequent failure at less than rated capacity. When in doubt, use the next larger capacity of hoist.
4. Do not use this or any other overhead materials handling equipment for lifting persons or allow people on unsecured load.
5. Stand clear of all loads and avoid moving a load over heads of other personnel. Warn personnel of your intention to move a load in their area. Do not leave unsecured load over people.
6. Do not leave the load suspended in the air unattended.
7. Permit only qualified personnel to operate unit.
8. Do not wrap the load chain around the supporting structure and hook onto itself as a choker chain.

   Doing this will result in:

   a. The loss of the swivel effect of the load hook which could mean twisted chain and a jammed liftwheel.
   b. The chain could be damaged at the load hook.
9. After positioning, secure load by using auxiliary cables and/or chains.
10. On the Double-reeved, 500, 600 and 1,000 lbs, (226, 272 and 453 kg) hoists, check for twists in the load chain. A twist can occur if the lower block has been capsized between the strands of chain. Reverse the capsize to remove twist.
11. Do not allow a load to bear against the hook latch. The latch is to help maintain the hook in position while the chain is slack before taking up the slack chain.
12. Take up a slack load chain carefully and start load easily to avoid shock and jerking of hoist chain. If there is any evidence of overloading, immediately lower the load and remove the excess load.

WARNING

Allowing a load to bear against the hook latch and/or hook tip can result in loss of load.

TO AVOID INJURY:

Do not allow a load to bear against the hook latch and/or hook tip. Apply load to hook bowl or saddle only.

13. Do not allow the load to swing or twist while hoisting.
14. Never operate the hoist when flammable materials or vapors are present. Electrical devices produce arcs or sparks that can cause a fire or explosion.
15. STAY ALERT! Watch what you are doing and use common sense. Do not use the hoist when you are tired, distracted or under the influence of drugs, alcohol or medication causing diminished control.

WARNING

TO AVOID INJURY:

-DO NOT	Lift more than rated load.
-DO NOT	Operate with twisted, kinked or damaged chain.
-DO NOT	Operate damaged or malfunctioning hoist.
-DO NOT	Lift people, loads over people, allow people on unsecured load or leave unsecured load over people.
-DO NOT	Operate hoist when load hook is not centered over hoist.
-DO NOT	Permit load hook block to contact hoist frame or chain container.
-DO	Replace damaged or malfunctioning hook latch.
-DO	Keep load chain well oiled.

MAINTENANCE

INSPECTION

To maintain continuous and satisfactory operation, a regular inspection procedure must be initiated so that worn or damaged parts can be replaced before they become unsafe. The intervals of inspection must be determined by the individual application and are based upon the type of service to which the hoist will be subjected. The inspection of hoists is divided into two general classifications designated as “frequent” and “periodic”.

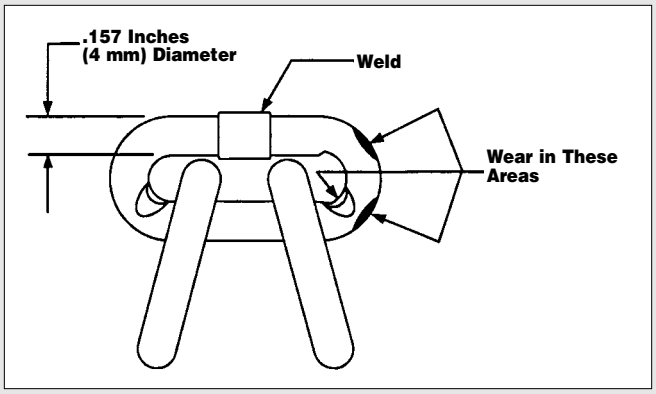


Figure 6A

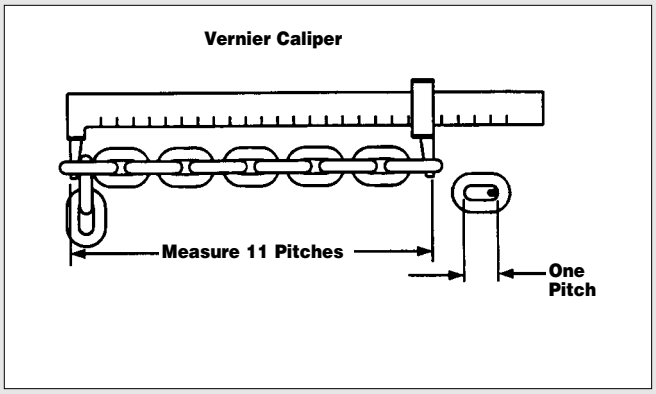


Figure 6B

Frequent Inspections

These inspections are usually visual examinations by the operator or other designated personnel. Frequent inspections are to be performed daily or monthly and shall include the following items:

a. Operate the hoist, with no load, and check for visual signs or abnormal noises which could indicate a potential problem - daily.
b. Brake for evidence of slippage - daily.
c. Chain for lubricant, wear, damaged links or foreign material - daily (see below).
d. Hooks for damage, cracks, twist, latch engagement and latch operation - daily (see below).

Any deficiencies must be corrected before the hoist is returned to service.

Periodic Inspections

There are visual inspections by an appointed person who records apparent external conditions to provide a basis for continuing evaluation. Periodic inspections are to be performed semi-annually and they should include the following:

a. All items listed under frequent inspections.
b. External evidence of loose screws.
c. External evidence of worn, corroded, cracked or distorted hook block, gears, bearings, chain stop and hook retainer.
d. External evidence of damage or excessive wear of the liftwheel or sheave (double-reeved unit). Widening and deepening of pockets may cause chain to lift-up in the pockets and cause binding between liftwheel and chain guide or between lower sheave and hook block. Check chain guide for wear or burring where the chain enters the hoist. Severely worn or damaged parts should be replaced.
e. External evidence of excessive wear of brake parts - see page 9.
f. Check the control station push buttons to make sure they operate freely and spring back when released.
g. Check power cord, control cord and control station for damaged insulation.
h. Check for pitting and any deterioration of contactor contacts (hoists with black control station).
i. Check the chain pin or dead end pin and chain stop for wear and cracks.
j. Check for lubricant leaks at gasket between main frame and gear housing. Tighten gear housing screws to stop leak. If leak persists, replace gasket.
k. Inspect splines on first pinion shaft and motor coupling for signs of wear or deterioration. Replace splined parts if worn or damaged.

NOTE: To perform some of the periodic inspections, it is necessary to partially disassemble the hoist. Refer to Disassembly - Assembly starting on page 13.

Any deficiencies noted must be corrected before the hoist is returned to service. Also, the external conditions may show the need for more detailed inspection which, in turn, may require the use of nondestructive-type testing.

Any parts that are deemed unserviceable are to be replaced with new parts before the unit is returned to service. It is very important that the unserviceable parts be destroyed to prevent possible future use as a repair item and properly disposed of.

Hook Inspection

Hooks damaged from chemicals, deformations or cracks or that have more than a 10° twist from the plane of the unbent hook or excessive opening must be replaced.

Any hook that is twisted or has excessive throat opening indicates abuse or overloading of the unit. Other load-sustaining components of the hoist should be inspected for damage.

On latch type hooks, check to make sure that the latch is not damaged or bent and that it operates properly with sufficient spring pressure to keep the latch tightly against the tip of the hook and allow the latch to spring back to the tip when released. If the latch does not operate properly. It should be replaced. See Figure 5B, Pg. 6 to determine when the hook must be replaced.

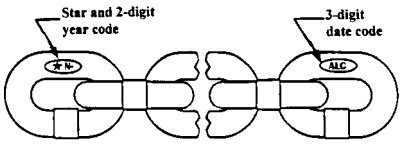
LOAD CHAIN

Chain should feed smoothly into and away from the hoist or hook block Double-reeved, 500, 600 and 1,000 lbs (226, 272 and 453 kg units). If chain binds, jumps or is noisy, first clean and lubricate it (see below). If trouble persists, inspect chain and mating parts for wear, distortion or other damage.

Chain Inspection

First clean chain with a non-caustic/non-acid type solvent and make a link by link inspection for nicks, gouges, twisted links, weld spatter, corrosion pits, striations (minute parallel lines), cracks in weld areas, wear and stretching. Chain with any one of these defects must be replaced.

Slack the portion of the chain that normally passes over the liftwheel. Examine the interlink area for the point of maximum wear (polishing see Figure 6A). Measure and record the stock diameter at this point of the link. Then measure stock diameter in the same area on a link that does not pass over the liftwheel (use the link adjacent to the loose end link for this purpose). Compare these two measurements.



Use only Star (H) grade load chain and factory replacement parts. Use of other chain and parts may be dangerous and voids factory warranty.

Figure 7A

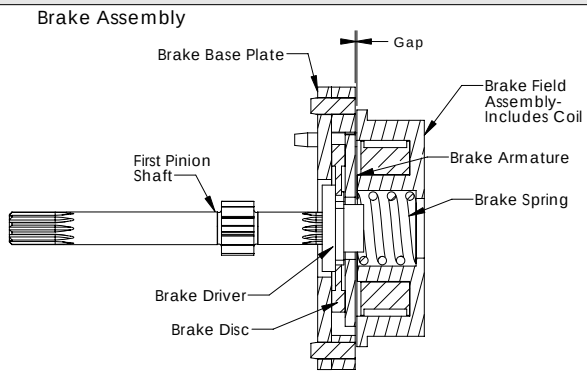


Figure 7B

If the stock diameter of the worn link is 0.010 inches (0.254mm), or more, less than the stock diameter of the unworn link, the chain must be replaced.

On the Double-reeved, 500, 600 and 1,000 lbs (226, 272 and 453 kg) units, repeat this examination of the chain that passes through the hook block.

Also check chain for stretch using a vernier caliper as shown in Figure 6B. Select an unused, unstretched section of chain (usually at the loose end) and measure and record the length over 11 chain links (pitches). Measure and record the same length on a worn section of chain. Obtain the amount of stretch and wear by subtracting the measurement of the unworn section from the measurement of the worn section. If the result (amount of stretch and wear) is greater than 0.145 inch (3.7mm), the chain must be replaced.

⚠ WARNING

Use of commercial or other manufactures' chain and parts to repair hoists may cause load loss.

TO AVOID INJURY:

Use only factory supplied replacement load chain and parts. Chain and parts may look alike, but our chain and parts are made of specific materials or processed to achieve specific properties.

Use only a "Knife-edge" caliper to eliminate possibility of false reading by not measuring full pitch length.

Note that worn chain can be an indication of worn hoist components. For this reason, the hoist's chain guide, hook block and liftwheel should be examined for wear and replaced as necessary when replacing worn chain.

Also, these chains are specially heat treated and hardened and should never be repaired.

IMPORTANT: Do not use replaced chain for other purposes such as lifting or pulling. Load chain may break suddenly without visual deformation. For this reason, cut replaced chain into short lengths to prevent use after disposal.

Chain Lubrication

A small amount of lubricant will greatly increase the life of load chain. Do not allow the chain to run dry.

Keep it clean and lubricate at regular intervals with Lubriplate® Bar and Chain Oil 10-R (Fiske Bros. Refining Co.) or equal lubricant. Normally, weekly lubrication and cleaning is satisfactory, but under hot and dirty conditions, it may be necessary to clean the chain at least once a day and lubricate it several times between cleaning.

When lubricating the chain, apply sufficient lubricant to obtain natural run-off and full coverage, especially in the interlink area.

⚠ WARNING

Used motor oils contain known carcinogenic materials.

TO AVOID HEALTH PROBLEMS:

Never use used motor oils as a chain lubricant. Only use Lubriplate® Bar and Chain Oil 10-R as a lubricant for the load chain.

LUBRICATION

Refer to Exploded View and Parts List pages 15 through 19.

⚠ WARNING

The lubricants used in and recommended for the Prostar Hoist may contain hazardous materials that mandate specific handling and disposal procedures.

TO AVOID CONTACT AND CONTAMINATION:

Handle and dispose of lubricants only as directed in applicable material safety data sheets and in accordance with applicable local, state and federal regulations.

NOTE: To assure extra long life and top performance, be sure to lubricate the various parts of the Prostar Hoist using the lubricants specified below. If desired, these lubricants may be purchased from the factory. Refer to page 19 for information on ordering the lubricants.

Gears

- The Protector (620-111) should operate for the normal life of the hoist without service. The device has been lubricated and calibrated by the factory and should not be adjusted.

CAUTION: The Protector™ is to be used with "Century Lubricants HB-11, #3" grease. Do not use any other grease or the Protector will not operate properly and parts could be damaged.

The gears and Protector are packed at assembly with grease and should not need to be renewed unless the gears have been removed from the housing and degreased.

CAUTION: Never degrease the Protector™ or attempt to disassemble this device. Degreasing the Protector may damage parts and using a device that has been degreased may cause erratic, inconsistent operation. If the Protector has been degreased, it must be replaced by a factory calibrated device.

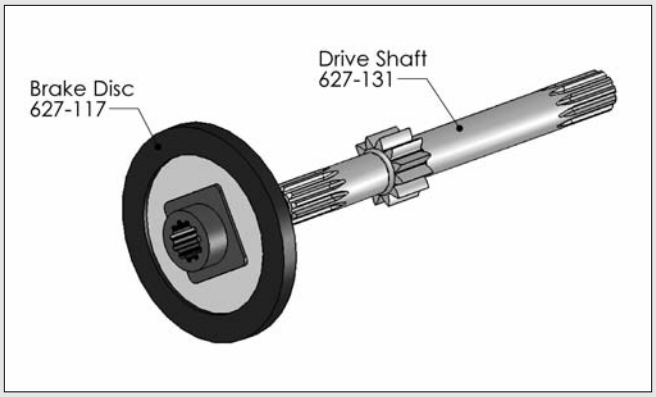


Figure 8A

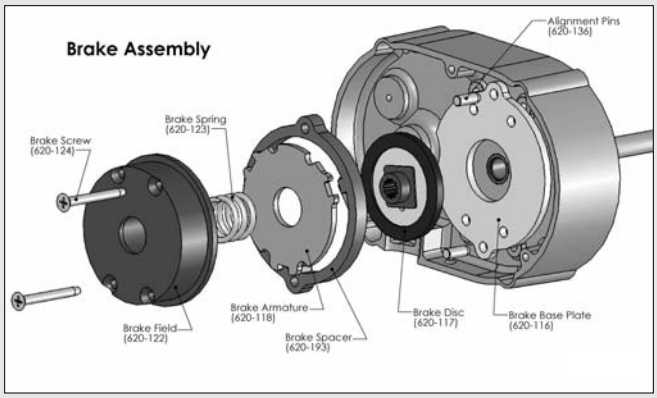


Figure 8B

If the gears are removed from the housing, wipe the excess grease off the outside surfaces of the Protector with a soft cloth and degrease the remaining gears and housings. Upon reassembly, add 2 oz. of the above grease to gears and housing. Also, coat the spline on the end of the first pinion and shaft (620-131) with a Molydisulphide lubricant such as Moly-Duolube 67 (Hercules Packing Co.).

Bearings

Rotor bearings (620-102 and 620-103) are pre-lubricated and require no lubrication. Needle bearings (620-109, 620-114, 620-115, 620-128 and 620-164) are packed at assembly with grease and should not need to be relubricated. However, if the housings (620-113 and 620-107), liftwheel (620-127) or sheave wheel (620-162) have been degreased, these bearings should be greased using "Century Lubricants HB-11, #3" grease.

Seals

When reassembling the unit, wipe the inside surface of the seals (620-108 and 620-130) with "Century Lubricants HB-11, #3" grease.

Hook Block

If the hook blocks are disassembled for inspection purposes, wipe the grease from the hook knob and the hook knob cavities in the hook blocks. At reassembly, coat the underside of the hook knob and the knob bearing surfaces of cavities in the hook blocks with Molykote BR-2-S (Dow Corning Corp.) grease or equivalent.

Chain Guide, Liftwheel and Sheave Wheel

- When the hoist is disassembled for inspection and/or repair, the chain guide, stripper, sheave wheel (on double chain unit) and liftwheel must be lubricated with Lubriplate® Bar and Chain Oil 10-R (Fiske Bros. Refining Co.) prior to reassembly. The lubricant must be applied in sufficient quantity to obtain natural runoff and full coverage of these parts.

Load Chain

Refer to page 7 for lubrication of the load chain.

Exterior Finish

The exterior surface of the hoist has a durable, scratch resistant baked powder coating. Normally, the exterior surfaces can be cleaned by wiping with a cloth. However, if the finish is damaged, compatible touch-up paint can be purchased from the factory. Refer to page 19 for information on ordering the paint.

ELECTRIC BRAKE

The brake is non-adjustable with a nominal .004 inch (0.102 mm) air gap and the brake disc must be replaced when the air gap reaches .012 inch (0.305 mm). The brake spacer should be no more than .012 inch (0.305 mm) thicker than the combined thickness of the brake disc and armature plate. Refer to Figure 7B, page 8.

WARNING

Failure to follow proper lockout/tagout procedures may present the danger of electrical shock.

TO AVOID INJURY:

Disconnect power and lockout/tagout disconnecting means before removing cover or servicing this equipment.

To inspect the brake gap, disconnect the hoist from power and remove brake end cover (620-132).

1. Refer to Figure 8B and disassemble the brake. Depress and hold the field assembly (620-122) while removing the four brake screws (620-124). The field assembly is under spring pressure and will spring-out if not held. Examine the base plate (620-116), brake disc (620-117) and armature (620-118) for excessive wear, scoring or warpage. Make sure the brake disc is not glazed, the coil firmly fixed in the field (620-122) and the brake spring (620-123) is not damaged. Worn, scored, warped, glazed or damaged parts should be replaced before preceding.
2. Refer to Figure 8B and assemble the brake . Depress and hold the field assembly (620-122) while installing the four brake screws through the brake parts and mount the brake on the gear housing (620-113). Tighten the four brake screws (620-124) to 25 in.lb. (2.8 NM).

PROTECTOR™

The Protector should operate for the normal life of the hoist without service. The device has been lubricated and calibrated and it should not be adjusted. If the Protector is not operating properly (see testing on page 14), it must be replaced with a properly calibrated unit from the factory.

PREVENTATIVE MAINTENANCE

A preventative maintenance program should be established to prolong the useful life of the hoist and maintain its reliability and continued safe use. The program should include the periodic and frequent inspections with particular attention being paid to the lubrication of the various components using the recommended lubricants (see page 19).

TROUBLE SHOOTING

Always disconnect unit from the power supply system before removing hoist covers or the back cover of control station.

WARNING

Failure to follow proper lockout/tagout procedures may present the danger of electrical shock.

TO AVOID INJURY:

Disconnect power and lockout/tagout disconnecting means before removing cover or servicing this equipment.

	—— Probable Cause ——	—— Remedy——
1.	Hook does not respond to control station.	
A.	No voltage at hoist.	A. Check for blown fuse or tripped circuit breaker or open disconnect switch in main line or branch circuit. Replace fuse, reset circuit breaker or close switch.
B.	Open control circuit due to loose connections or broken wires in circuit; motor thermal protector open; control station contacts not closing; open or shorted winding in transformer; transformer thermal cut-out open; mechanical binding in contactor; open or shorted winding in contactor coil.	B. Check electrical continuity thru motor thermal protector. If it is open, allow motor to cool. If this does not correct the trouble, use wiring diagram to check electrical continuity of wiring, transformer, contactor and control station contacts. Repair wiring or replace defective part.
C.	Wrong voltage or frequency.	C. Make sure that the power supply to hoist is the same as that shown on identification plate on button of hoist.
D.	Low voltage.	D. Check power supply system to make sure it complies with the requirements listed under “power supply system” starting on page 3.
E.	Brake not releasing due to open or shorted coil, defective diodes or brake disc binding.	E. Check coil continuity, diodes (see page11) and connections. Make sure brake disc slides freely on brake driver and brake spring is not broken. Replace coil (brake field), repair connections, remove burrs from brake driver so that brake disc slides freely and/or replace brake spring.
F.	Excessive load.	F. Reduce load to capacity limit as indicated on identification and capacity labels on hoist.
G.	Phase failure (single phasing-three phase units only) - open circuit, grounded or faulty connection in one line of power supply system, hoist wiring, contactor, motor leads or windings.	G. Check for electrical continuity and repair or replace defective part.
2.	Hook moves in wrong direction.	
A.	Wiring connections reversed in control station or hoist.	A. Use wiring diagram and check wiring connections.
B.	Failure of cut-out device (single phase units only) to effect dynamic braking at time of reversal.	B. Check connections to cut-out device. Replace damaged device or faulty capacitor.
C.	Phase reversal (three phase units only).	C. See “Three Phase Hoists” on page 4.
3.	Hook lowers but will not raise.	
A.	Excessive load.	A. See item 1F.
B.	Hoisting circuit is OPEN due to loose connections or broken wire in circuit; control station contacts are not making; open or shorted winding in contactor coil.	B. Use wiring diagram to check electrical continuity of wiring and control station contacts. Repair wiring or replace defective part.
C.	Motor cut-out device not operating. (single phase units only).	C. Check cut-out device and connections to same. See page 11. Repair connections and/or replace cut-out device.
D.	Phase failure (three phase units only).	D. See item 1G.
4.	Hook raises but will not lower.	
A.	Lowering circuit is OPEN due to loose connections or broken wire; control station contacts not closing; open or shorted winding in contactor coil.	A. See item 1B.
B.	Motor cut-out device not operating (single phase units only).	B. See item 3C.
C.	Phase reversal (three phase units only).	C. See item 2C.
D.	Phase failure (three phase units only).	D. See item 1G.
5.	Hook does not stop promptly.	
A.	Brake slipping.	A. Check electric brake (see page 9), especially the brake disc for wear or glazing and make sure brake spring is not broken. Replace worn or glazed brake disc or replace brake spring.
B.	Excessive load.	B. See item 1F.
6.	Hoist operates sluggishly.	
A.	Excessive load.	A. See item 1F.
B.	Low voltage.	B. See item 1D.
C.	Brake dragging.	C. Check electric brake (see page 9). Check to make sure brake disc is free to move on brake driver. Check for warped or bent brake disc and base plate. Free-up brake disc by removing burrs on driver. Replace warped armature base plate or brake disc.
D.	Phase failure or unbalanced current in phases (three phase units only).	D. See item 1G.
7.	Motor overheats (Hoist will not operate in up or down direction - motor thermal protector open).	
A.	Excessive load.	A. See item 1F.
B.	Low voltage.	B. See item 1D.
C	Extreme external heat.	C. Above an ambient temperature of 104°F (40°C), the frequency of hoist operation must be limited to avoid overheating the motor. Special provisions should be made to ventilate the space around the hoist and shield it from radiant heat.
D.	Frequent starting or reversing.	D Avoid excessive inching, jogging and reversing. This type of operation drastically shortens motor cut-out device, capacitor, control station and contactor contact life and causes excessive brake wear.
E.	Brake dragging.	E. See item 6C.
F.	Motor cut-out device not opening start winding circuit (single phase units only).	F. See item 3C.
G.	Phase failure or unbalanced current in phases (three phase units only).	G. See Item 1G.
8.	Hook fails to stop in either direction.	
A.	Brake not closing or ineffective.	A. Check electric brake (see page 9), and armature for binding, broken brake spring, first pinion shaft broke, brake driver worn, brake disc worn. Correct binding of armature; replace broken or worn parts.
9.	Hook lowers when up button is depressed.	
A.	Phase reversal (three phase units only).	A. See Item 2C.

RECOMMENDED SPARE PARTS

To insure continued service of the Prostar Hoist, the following is a list of parts that are recommended to be kept on hand at all times to replace parts that have worn or failed. Parts applicable to your hoist should be stocked.

KEY. NO.	PART NAME	QTY. PER HOIST	KEY NO.	PART NAME	QTY PER HOIST
620-122	BRAKE FIELD ASSEM.	1	620-117	BRAKE DISC	1
620-106	CAPACITOR	1	620-110	CUT-OUT DEVICE	1
620-181	TRANSFORMER	1	620-178	REVERSING CONTACTOR	1
624-232	CONTROL STATION	1	624-306	CONTROL STATION PARTS KIT	1

Refer to page 14 for ordering instructions and the Parts List for part numbers.

ELECTRICAL DATA

OPEN OR SHORT CIRCUIT IN ELECTRICAL COMPONENTS

Open circuits in electrical components may be detected by isolating the component and checking for continuity using an ohmmeter. Short circuits are indicated by D.C. resistance substantially below the nominal D.C. resistance. Motor current draw should be measured at the end of the power cord while the hoist is raising rated load. Check cut-out device (on single phase units only) by measuring coil resistance (terminals 3 and 4) and making sure the contact (terminals 2 and 4) is open.

ELECTRICAL DATA FOR COMPONENTS

Stators

Volts-Phase-Hertz	Full Load Current (Amps)	Nominal D.C. Resistance (Ohms)
110 to 120-1-50/60	2.7	Yellow to Red: 7.7 Blue to Black: 6.2
220-1-50	1.1	Yellow to Red: 27.7 Blue to Black: 24.2
220-3-50 230-3-60	1.1 0.6	White to Red: 26.8 White to Black: 26.8 Red to Black: 26.8
380-3-50 415-3-50 460-3-60	0.63 0.58 0.88	White to Red: 72.6 White to Black: 72.6 Red to Black: 72.6
575-3-60	0.4	White to Red: 140.0 White to Black: 140.0 Red to Black: 140.0

Transformers

Primary	220/380v.	230/460v.	460v.	575v.	575v.
Secondary	48v.	115v.	48v.	115v.	48v.
Leads	Nominal D.C. Resistance (ohms)				
Black to Purple	11.7	71.0	11.9	73	98
White to Red	228.0	224.0			
White to Yellow	614.0	902.0	-	-	-
Red to Yellow	384.0	682.0	-	-	-
White to Orange	-	-	916.0	1100	1100

Coils

	Voltage	Current Draw (Amps)	Nominal D.C. Resistance (Ohms)
Contactor Coils	115 48	0.02 0.2	765 98.4
Brake Field	*115 **220 ***280	- - -	*272 1120 1608
Cut-out Device	115	0.1	Terminals 3 to 4: 0.3

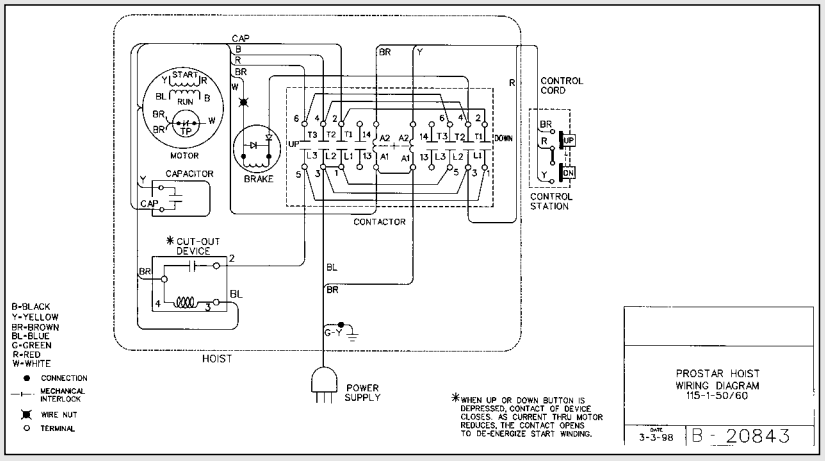
*to measure 115 volt brake coil resistance, carefully cut and peel back the shrink tubing on the brake coil leads to expose the diodes. Trace the leads from the coil to the diodes. Connect the ohmmeter leads at the coil side of the diodes (refer to the wiring diagram) and measure the resistance. If coil is ok, reinsulate the brake coil leads and diodes using electrical tape. Diodes are checked by connecting the ohmmeter to the ends of the brake coil leads, checking for an open or short circuit, reversing the connections to the ohmmeter and again checking for an open or short circuit. If there is an indication of an open or short circuit with the original and reversed connections, diodes are defective and the brake field (620-122), which includes the diodes, must be replaced. Usable diodes are indicated by continuity with the original connections and an open circuit when the connections are reversed or, an open circuit with the original connection and continuity with reversed connections.

** 220 volt brake coil is used on 220-1-50, 220-3-50/60, 380-3-50, 415-3-50 and 460-3-60 hoists.

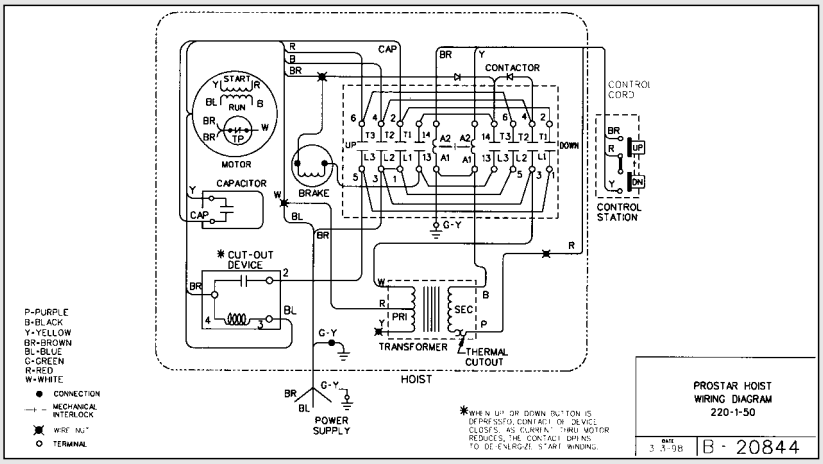
***280 volt brake is used on 575-3-60 hoists.

Wiring Diagrams

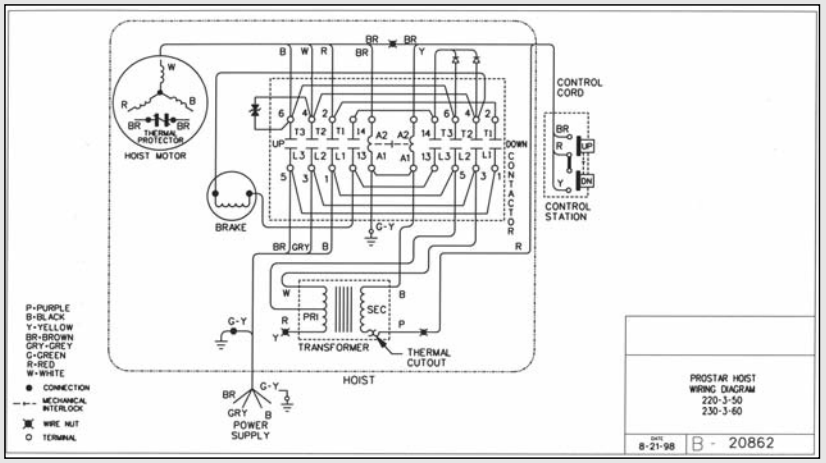
THE FOLLOWING WIRING DIAGRAMS ARE REPRESENTATIVE. FOR ACTUAL WIRING DIAGRAM, REFER TO THE DIAGRAM SUPPLIED WITH THE HOIST. NOTE: FOR 575-3-60 UNITS, REFER TO WIRING DIAGRAM SUPPLIED WITH HOISTS.



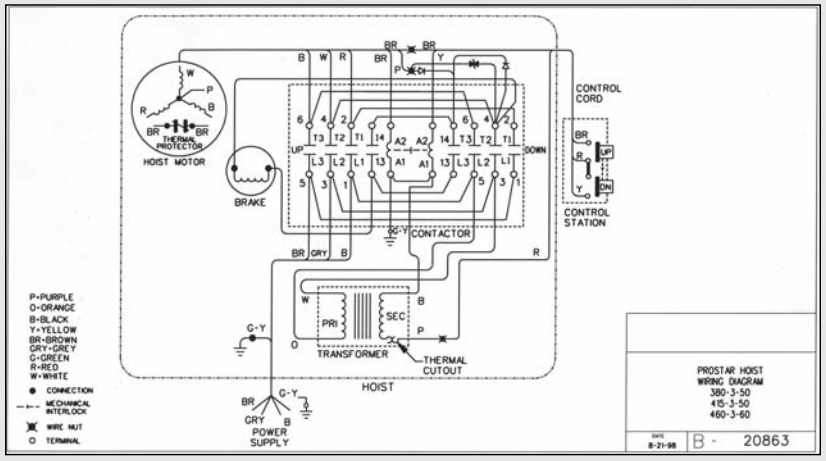
115-1-50/60 HOISTS WITH CONTACTOR (Black Control Station)



220-1-50 HOISTS WITH CONTACTOR (Black Control Station)



220-3-50 230-3-60 HOISTS WITH CONTACTOR (Black Control Station)



380-3-50 415-3-50 460-3-60 HOISTS WITH CONTACTOR (Black Control Station)

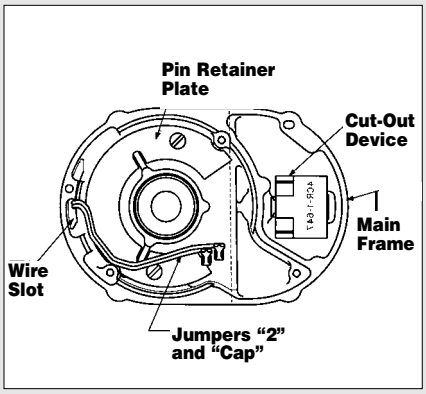


Figure 12A

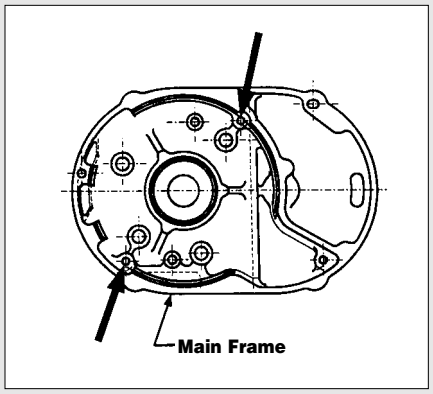


Figure 12B

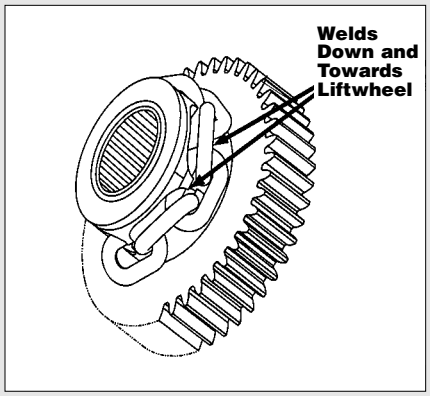


Figure 12C

DISASSEMBLY-ASSEMBLY

When disassembling and assembling the Prostar Hoist, refer to the exploded view and the parts list on pages 15 through 17. These show the proper relationship of the parts, the names of the parts and the required quantities of the parts. In addition, please observe the following:

1. Needle bearings are pressed into the gear housing (620-113), main frame (620-107), liftwheel (620-127) and lower sheave wheel (620-162). Unless they are to be replaced, do not attempt to remove these bearings.
2. A liftwheel seal (620-108) is pressed into the main frame (620-107) and a seal (620-130) is pressed into the end of the liftwheel shaft (620-148). Be careful that these seals are not cut or damaged during disassembly and reassembly.
3. Refer to page 8 for disassembly, inspection, reassembly and adjustment of the brake.
4. Do not attempt to disassemble the Protector™ - refer to page 9.
5. Refer to page 8 for lubrication instructions.
6. See next section for load chain removal and installation.
7. Tighten the various screws as follows:

KEY-NO.	PART NAME	SEATING LB. IN.	TORQUE (N M)
620-126	Pin Retainer Plate Screw	25	2.8
620-154	Motor Cover Screw	25	2.8
620-134	Gear Housing Screw	25	2.8
620-133	Brake End Cover Screw	25	2.8
620-168	Dead End Plate Screw	125	14.1
620-140	Hook Retainer Screw	10	1.1
620-157	Hook Block Screw, Double-reeved, 500, 600 and 1,000 lbs (226, 272 and 453 kg)	125	14.1
	Single-reeved, 250, 300 and 500 lbs (113, 136 and 226 kg)	50	5.6
620-152	Power Cord Ground Screw	20	2.2

8. When removing the stator (620-100), first remove the brake end cover (620-132). Disconnect stator leads from the wiring or contactor. At the other end, remove the motor end cover (620-105). On single phase units, use an insulated screw driver to short between the bare terminals of the capacitor to discharge it. A spark may be produced. Disconnect wiring to the capacitor and then remove the capacitor. Remove the cut-out device (620-110) and disconnect the wires from it. Remove the rotor assembly (620-101) and thrust washer (620-104). Then slide the stator out of the main frame (620-107).
9. To install the stator, (Refer to Figure 12 A) and make sure that the pin retainer plate (620-125) has been assembled to the main frame (620-107). On single phase units slide jumpers "2" and "CAP" through the wire slot in the main frame. Route these wires around the rotor bearing boss in the main frame as shown in Figure 12A. Attach the brown and blue stator leads and "2" jumper to cut-out device (refer to wiring diagram). Slide the cut-out device into the cavity as shown. Push the cut-out device down until it sets on the main frame. Place the capacitor on top of the cut-out device and attach "CAP" jumper and the yellow stator lead to it. Re-route jumpers "2" and "CAP", if necessary to make sure they clear the rotor bearing boss as shown in Figure 12A. On all units slide stator leads through wire slot. Align the slots in the stator shell with the threaded holes in the main frame, as shown in Figure 12B. With the leads down, slide the stator into the main frame. Slide the rotor, large bearing first, into stator. Place the rotor thrust washer (620-104) on top of the exposed rotor bearing and then assemble the motor end cover (620-105) to the main frame. Using wiring diagram, complete the wiring at the brake end of the unit.
10. Properly install the upper hook as shown in Figure 13A, then slide the hook retainer (620-139) into the cavity on top of the hoist and secure it using hook retainer screw (620-140). Tighten screw to a seating torque of 10 in. lbs. (1.1 NM).
11. After reassembly, test the unit per instructions on page 14.

LOAD CHAIN REMOVAL/INSTALLATION

1. If unit has a chain container, remove it from the chain guide.
2. Remove the chain stop (620-146). Depress DOWN button and run chain out of hoist.
3. Feed a short length of soft wire through the opening in the chain guide/stripper (620-192) until it comes out of the hoist. Attach "new" chain to end of the wire which is in the center of the hoist. Position the chain so that the welds will be down and towards the liftwheel as shown above in Figure 12C.
4. Jog the UP push button while pulling on the free end of wire until the chain comes out of the hoist. Remove the wire and attach the chain stop as shown in Figure 13B. On units with chain container, place chain stop and loose end of chain in chain container. Attach chain container to chain guide.
5. On the 250, 300 and 500 lbs (single reeved), (113, 136 and 226 kg) units, remove the hook block from the old chain and attach it to the new chain by reusing the chain pin (620-158). On the 500, 600 and 1000 lbs (226, 272 and 453 kg) units:
   - Remove dead end plate (620-160) from hoist.
   - Remove dead end pin (620-161) from the last link of chain and pull chain out of dead end plate.
   - Pull old chain out of hook block and disassemble the hook block.
   - Make sure the new chain is not twisted and wrap the chain around the sheave wheel (620-162) with welds down and towards the sheave wheel.
   - Reassemble hook block and pull the new chain through the hook block.

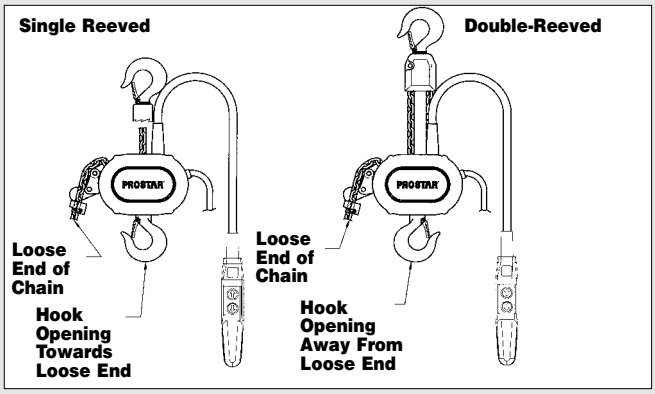


Figure 13A

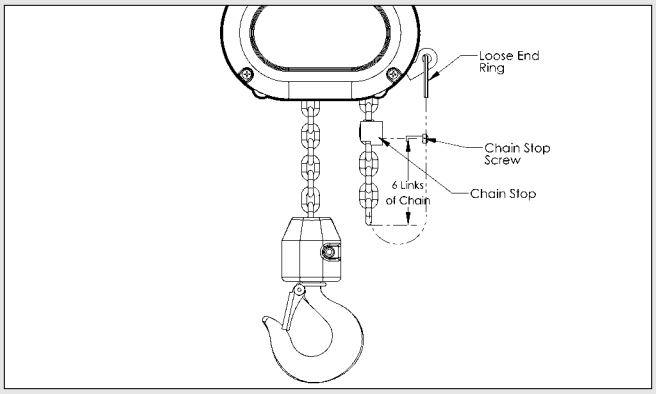


Figure 13B

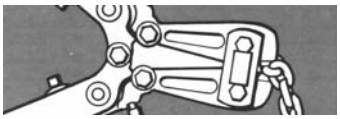
- Slide the dead end plate over the last link and secure it using the dead end pin.
- Making sure the chain is not twisted between the hook block and hoist, attach the dead end plate to the chain guide/stripper (620-192).
- Retrace the new chain and check for twists. If chain is twisted, start over.

IMPORTANT: Do not use "old" chain for other purposes such as lifting or pulling. Load chain may break suddenly without visual deformation. For this reason, cut the "old" chain into short lengths to prevent use after disposal.

CUTTING CHAIN

Hoistaloy® load chain is hardened and it is difficult to cut. The following methods are recommended when cutting a length of new chain from stock or cutting off worn chain. Always wear eye protection when cutting chain.

1. Use a grinder and nick the link on both sides (see right), then secure the link in a vise and break off with a hammer.



2. Use a 7" (177 mm) minimum diameter by 1/8" (3.1 mm) thick abrasive wheel (or type recommended by wheel supplier) that will clear adjacent links.

⚠ WARNING

Cutting chain can produce flying particles.

TO AVOID HEALTH PROBLEMS:

- Wear eye protection.
- Place a shield over chain to prevent flying objects.

3. Use a bolt cutter (see right) with special cutter jaws for cutting hardened chain. Jaws should be 1 inch (25.4 mm) long.

TESTING

Before using, all altered, repaired or used hoists that have not been operated for the previous 12 months must be tested by the user for proper operation. First, test the unit without a load and then with a light load of 50 pounds (23 kg) times the number of load supporting parts of load chain to be sure that the hoist operates properly and that the brake holds the load when control is released. Next test with a load of *125% of rated capacity. In addition hoists in which load sustaining parts have been replaced should be tested with *125% of rated capacity by or under the direction of an appointed person and written report prepared for record purposes. After this test, check that the Protector functions. If the Protector permits lifting a load in excess of 200% of rated load, it should be replaced.

*If the Protector prevents lifting of a load of 125% of rated capacity, reduce load to rated capacity.

REPAIR PARTS

ORDERING INSTRUCTIONS

The following information must accompany all correspondence and orders for replacement parts:

1. Hoist rated load from identification plate.
2. Serial number of the hoist stamped below identification plate.
3. Voltage, Phase, Hertz from identification plate.
4. Length of lift.
5. Key number of part from parts list.
6. Number of parts required.
7. Part name from parts list.
8. Part number from the parts list.

NOTE: When ordering replacement parts, it is recommended that consideration be given to the need for also ordering such items as gaskets, fasteners, seals, etc. These items may be damaged or lost during disassembly or just unfit for future use because of deterioration from age or service.

⚠ WARNING

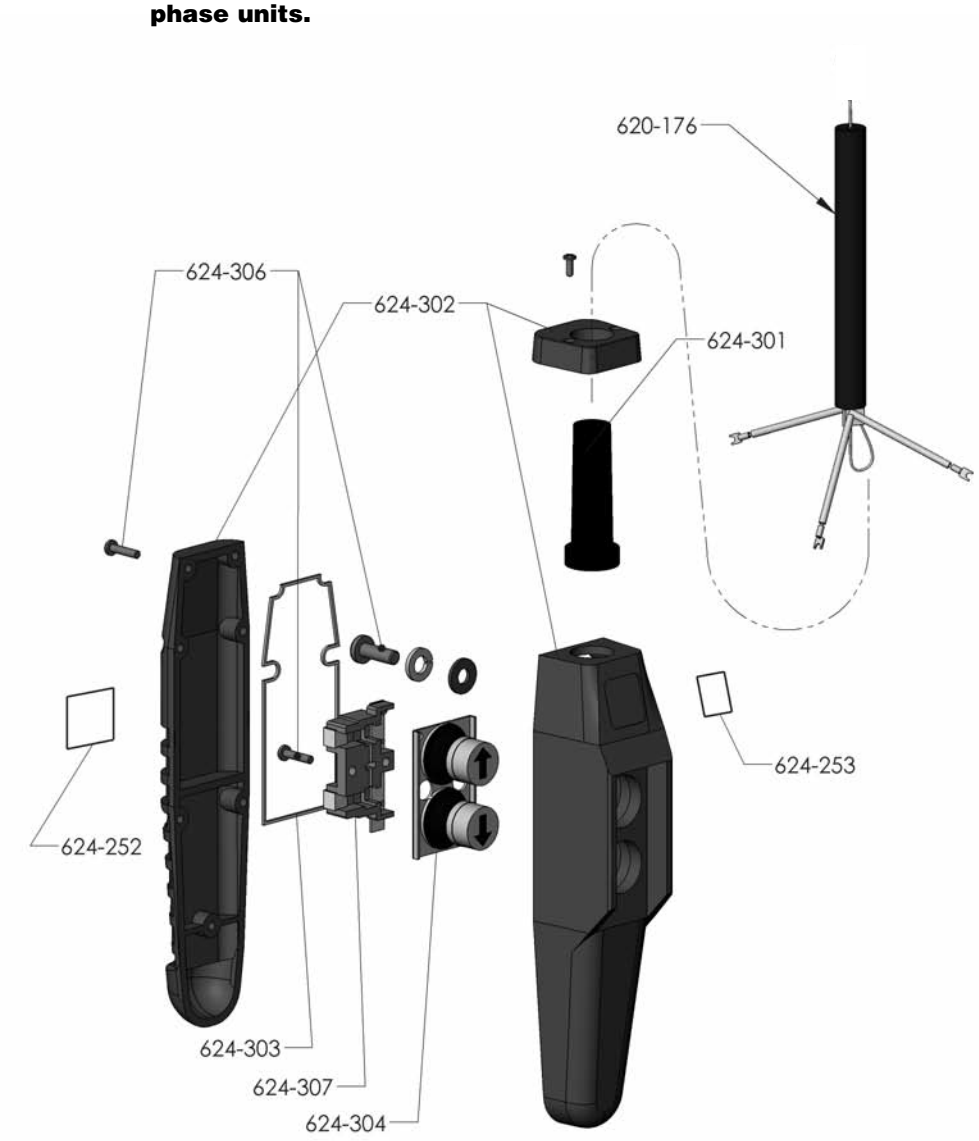
Using "commercial" or other manufacturer's parts to repair Prostar Hoists may cause load loss.

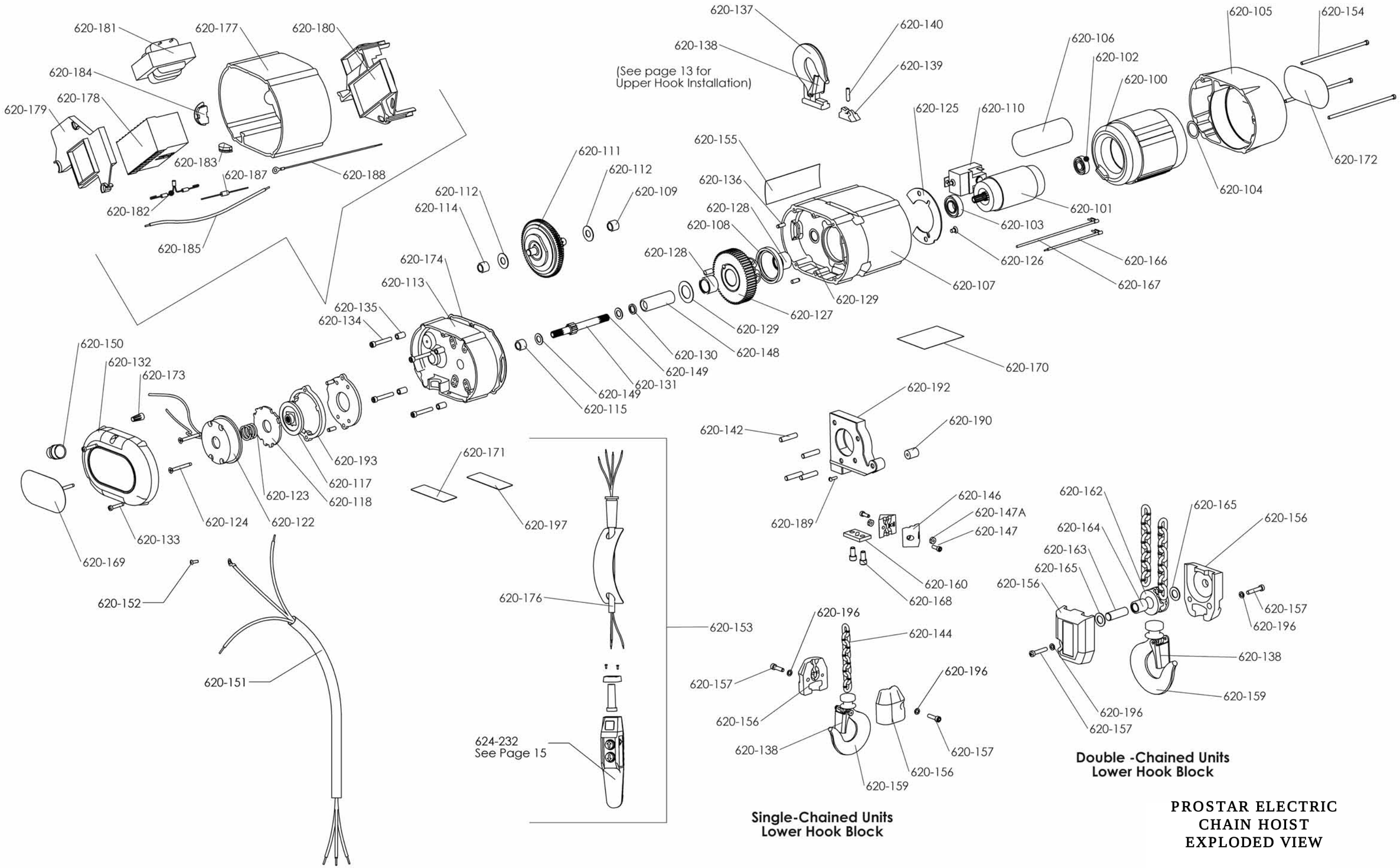
TO AVOID INJURY:

Use only factory supplied replacement parts. Parts may look alike but our parts are made of specific materials or processed to achieve specific properties.

CONTROL STATION			
Key No.	**Part Name**	**No. Req'd**	**Part No.**
624-232	Control Station (Includes 624-301 thru 624-307)	1	36900B
624-252	Warning Label (Electrical)	1	24842
624-253	Manufacturer Label	1	28470
624-301	Control Station Grommet	1	36989
624-302	Control Station Housing	1	36998B
624-303	Gasket	1	36986
624-304	Control Station Button Assembly	1	36988
624-306	Control Station Parts Kit	1	36939
624-307	Contact Assembly (Includes 624-304)	1	36987
624-308	Warning Label	1	24845

Control Station (Black) for use on 115-1-50/60 hoists with contactor, 220-1-50 and three phase units.





PROSTAR ELECTRIC
CHAIN HOIST
EXPLODED VIEW

PROSTAR ELECTRIC HOIST
PARTS LIST

KEY NUMBER	PART NAME	NO. REQ'D	PART NUMBER
620-100	Stator		
	115-1-50/60 Hoists	1	20707
	220-1-50 Hoists	1	20328
	220-3-50/60 Hoists	1	20329
	380-3-50, 415-3-50 and 460-3-60 Hoists	1	20330
	575-3-60 Hoists	1	20344
620-101	Rotor Assembly (Includes 620-102 and 620-103)	1	20651
620-102	Rotor Bearing, Outboard	1	88487
620-103	Rotor Bearing, Inboard	1	88486
620-104	Rotor Thrust Washer	1	20727
620-105	Motor End Cover	1	20321
620-106	Capacitor		
	115-1-50/60 Hoists	1	20708
	220-1-50 Hoist	1	20785
620-107	Main Frame (Includes 620-108 and 620-109)	1	20353
620-108	Liftwheel Seal	1	20705
620-109	Protector Bearing, Main Frame Side	1	88636
620-110	Cut-Out Device		
	115-1-50/60 Hoists	1	20709
	220-1-50 Hoists	1	20786
620-111	Protector Assembly		
	6 fpm, 1,000 lbs.	1	20665
	8 fpm, 500 & 600 lbs.	1	20645
	8 fpm, 1000 lbs.	1	20660
	12 fpm 500 lbs.	1	20665
	12 fpm, 600 lbs.	1	20638
	12 fpm, 1000 lbs.	1	20662
	16 fpm, 250 & 300 lbs.	1	20645
	16 fpm, 500 lbs.	1	20660
	20 fpm, 500 lbs	1	20648
	20 fpm, 600 lb.s.	1	20661
	24 fpm, 250 & 300 lbs.	1	20638
	24 fpm, 500 lbs.	1	20662
	40 fpm, 250 lbs.	1	20648
	40 fpm, 300 lbs.	1	20661
620-112	Protector Thrust Washer	2	88640
620-113	Gear Housing (Includes 620-114 and 620-115)	1	20351
620-114	Protector Bearing - Gear Housing Side	1	88636
620-115	First Pinion Bearing	1	88635
620-116	Brake Base Plate	1	20419
620-117	Brake Disc	1	Contact Factory
620-118	Brake Armature	1	20420
620-122	Brake Field (Includes Brake Coil)		
	115-1-50/60 Hoists	1	20659
	220-1-50, 220-3-50/60, 380-3-50, 415-3-50 and 460-3-60 Hoists	1	20658
	575-3-60 Hoists	1	20629
620-123	Brake Spring	1	20887
620-124	Brake Screw	4	920740
620-125	Pin Retainer Plate	1	20700
620-126	Pin Retainer Plate Screw	2	20743
620-127	Liftwheel and Gear Assembly		
	6 fpm, 1,000 lbs.	1	20666
	8 fpm, 500, 600 & 1,000 lbs.	1	20664
	12 fpm, 500 lbs.	1	20666
	12 fpm, 600 & 1000 lbs.	1	20647
	16 fpm, 250, 300 & 500 lbs.	1	20664
	20 fpm, 500 & 600 lbs.	1	20657
	24 fpm, 250, 300 & 500 lbs.	1	20647
	40 fpm, 250 & 300 lbs.	1	20657

KEY NUMBER	PART NAME	NO. REQ'D	PART NUMBER
620-128	Liftwheel Bearing	2	88637
620-129	Liftwheel Thrust Washer	2	88638
620-130	Liftwheel Shaft Seal	1	20704
620-131	First Pinion and Shaft		
	10 Tooth	1	Contact
	12 Tooth	1	Factory
620-132	Brake End Cover	1	20345
620-133	Brake End Cover Screw		
	Hoists without contactor	3	920715
	Hoists with contactor	3	20808
620-134	Gear Housing Screw	4	920718
620-136	Frame Pin	2	920720
620-137	Hook (Includes 620-138)	1	20650B
620-138	Hook Latch Kit	1	595522
620-139	Hook Retainer	1	20712
620-140	Hook Retainer Screw	1	920725
620-142	Chain Guide/Stripper Pin	4	20729
620-144	Load Chain (Specify Lift or Length Required)	-	85988
620-145	Loose End Ring	1	20744
620-146	Chain Stop-Sure Stop	2	20428
620-147	Chain Stop Screws	2	25848
620-147A	Chain Stop Screw Nut	2	982472
620-148	Liftwheel Shaft	1	20313
620-149	First Pinion Thrust Washer	2	88639
620-150	Power Cord Grommet	1	20779
620-151	Power Cord		
	115-1-50/60 Hoists with contactor	1	20516
	220-1-50 Hoists		
	220-3-50/60, 380-3-50, 415-3-50, 460-3-60 and 575-3-60 Hoists	1	20501
620-152	Power Cord Ground Screw	1	982877
620-153	Control Station and Cord Assembly		
	(Includes control station, cord, warning tag and upper grommet)		
	Black Control Station for:		
	10 ft. lift	1	20642
	15 ft. lift	1	20643
	20 ft lift	1	20644
	For other lifts contact CM		-
620-154	Motor Cover Screw	1	920719
620-155	Caution Label	1	20758
620-156	Hook Block (Single Chained)	2	20995
	Hook Block (Double Chained)	2	20739
620-157	Hook Block Screw (Single Chained)	2	920730
	Hook Block Screw (Double Chained)	2	920724
620-159	Hook (Includes 620-138)	1	23030
	Latchlok Hook	1	40618
620-160	Dead End Plate, (Double chained)	1	20714
620-161	Dead End Pin, (Double chained)	1	920720
620-162	Sheave Wheel w/620-164, (Double chained)	1	20652
620-163	Sheave Wheel Shaft, (Double chained)	1	20318
620-164	Sheave Wheel Bearing, (Double chained)	1	88641
620-165	Sheave Wheel Thrust Washer, (Double chained)	2	88639
620-166	Jumper (#2)	1	20610
620-167	Jumper (Cap)	1	20609
620-168	Dead End Plate Screw, (Double chained)	2	73715

PROSTAR ELECTRIC HOIST
PARTS LIST

Key Number	Part Name	No. Req'd	Part Number
620-168	Dead End Plate Screw, (Double chained)	2	73715
620-169	Capacity Warning Label		
	250 lbs.	1	20762
	300 lbs.	1	20737
	500 lbs.	1	20763
	600 lbs.	1	20738
	1,000 lbs.	1	20884
620-170	I.D. Label	1	Contact Factory
620-171	Warning Label	2	24842
620-172	Prostar Label	1	20764
620-173	Wire Nut (specify No. Req'd)	-	920756
620-174	Gasket	1	20755
620-176	Control Cord Assembly (includes cord, strain relief and warning tag) For Black Control Station and		
	10 ft. lift	1	20675
	15 ft. lift	1	20676
	20 ft. lift	1	20677
	For other lifts, contact factory	-	-
650-177	Frame Spacer	1	20333B
620-178	Contactor (includes power jumpers)		
	115 VAC Coils	1	20814
	48 VAC Coils	1	20787

Key Number	Part Name	No. Req'd	Part Number
620-179	Components Board - Outboard	1	20777
620-180	Components Board - Inboard	1	20778
620-181	Transformer		
	48 Volt Secondary (220/380 primary)	1	20851
	48 Volt Secondary (460 primary)	1	20834
	115 Volt Secondary (230/460 primary)	1	20831
	115 Volt Secondary (575 primary)	1	20876
	48 Volt Secondary (575 primary)	1	20866
620-182	Diode Assembly	1	20789
620-183	Control Cord Plug	1	20780
620-184	Power Cord Plug	1	20781
620-185	Contactor Jumper (Specify No. Req'd)	-	20332
620-187	Voltage Suppressor		
	230-3-50/60, 380-3-50 and 460-3-60 Hoists	1	20861
	575-3-60 Hoists	1	20869
620-188	Gound Jumper	1	20641
620-189	Chain Guide Screw	1	987859
620-190	Chain Guide Spacer	1	20812
620-191	Warning Label	1	20765
620-192	Chain Guide Stripper	1	20622
620-193	Brake Spacer	1	20723
620-196	Hook Block Screw Lockwasher (Double Chained)	2	940802
	Hook Block Screw Lockwasher (Single Chained)	2	983544
620-197	Warning Label	1	24884

Part Number for Packaged Lubricants Used in the Prostar Hoist

(Refer to Page 8 for Lubrication Instructions)

Lubricant Usage	Type Lubricant	Part Numbers and Packaged Quantity of Lubricants
Hoist Gears	Grease Century Lubricants HB-11, #3	28605 for 1/2 lb. Can 28616 for 1 lb. Can 28617 for 4 lb. Can
Spline on end First Pinion and Shaft	Oil-Graphite Mixture Hercules Packing Co. Moly-Duolube 67	40628 for 1 Pint Can
Load Chain	Oil Fiske Bros. Lubriplate® Bar and Chain Oil #10R	28608 for 1 Pint Can 28619 for 1 Gal. Can
Lower Hook Knob	Grease Dow Corning Molykote BR-2-S	28606 for 1/2 lb. Can 28618 for 1 lb. Can

When ordering lubricants, specify the type of lubricant, part number and packaged quantity required.
Touch-up Paints for Prostar Hoist:
Order *(1) case (12-12 oz. Aerosol Cans) of Black Touch-up paint Part Number 84189.
*Touch-up paints are only available in case quantities.
NOTE: When painting hoists, also order warning labels, etc. that may be coated during painting.

NOTES